

AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A process for making thermoplastic resin coated articles, the process comprising:

applying an aqueous solution or dispersion of a first thermoplastic epoxy resin on the outer surface of an article substrate by dip, spray, or flow coating, the aqueous solution of the first thermoplastic epoxy resin prepared by agitating a thermoplastic epoxy polymer in a solution of water with an organic acid or phosphoric acid;

withdrawing the article from the dip, spray, or flow coating at a rate so as to form a first coherent film comprising about 0.05 to about 0.75 grams of the first thermoplastic epoxy resin; and

curing/drying the coated article with an irradiation source for about 5 to 60 seconds until the first film is substantially dried so as to form a first coating. [[;]]

applying an aqueous solution or dispersion of a second thermoplastic resin on the substantially dried first coating of the article substrate by dip, spray, or flow coating;

withdrawing the article from the dip, spray, or flow coating at a rate so as to form a second coherent film;

curing/drying the coated article until the second film is substantially dried so as to form a second coating;

wherein the first coating is an inner coating layer comprising a first phenoxy type thermoplastic resin; and

wherein the second coating layer comprises a different coating material than the first phenoxy type thermoplastic resin.

2. **(Currently Amended)** [[A]] The process for making a thermoplastic resin coated article of Claim 1, the process further comprising:

applying an aqueous solution or dispersion of a first-second thermoplastic epoxy resin on an outer surface the first coating of [[an]] the article substrate by dip, spray, or flow coating;

withdrawing the article from the dip, spray, or flow coating at a rate so as to form a first second coherent film;

curing/drying the coated article until the first second film is substantially dried so as to form a first second coating;

~~applying an aqueous solution or dispersion of a second thermoplastic resin selected from the group consisting of polyester, acrylic, and a second thermoplastic epoxy resin that is different from the first thermoplastic epoxy resin, on an outer surface of an article substrate by dip, spray, or flow coating;~~

~~withdrawing the article from the dip, spray, or flow coating at a rate so as to form a first coherent film;~~

~~curing/drying the coated article until the first film is substantially dried so as to form a second coating;~~

~~wherein the first thermoplastic epoxy resin consists essentially of a phenoxy type thermoplastic resin; and~~

~~wherein the curing/drying is performed so as to form an article that exhibits substantially no blushing or whitening when exposed to water.~~

3. **(Currently Amended)** The process of claim [[1]] 2 wherein the ~~different coating material~~second thermoplastic resin is selected from the group consisting of polyesters, acrylics, and a second thermoplastic epoxy resins that is different from the first thermoplastic epoxy resin.

4. **(Currently Amended)** The process of claim 1 wherein ~~at least one the first~~ coating ~~layer~~ is crosslinked to provide chemical or mechanical abuse resistance.

5. **(Original)** The process of claim 1, wherein the article substrate comprises a polymer selected from the group consisting of polyesters, polyolefins, polycarbonates, polyamides and acrylics.

6. **(Original)** The process of claim 5, wherein the article substrate comprises amorphous and/or semi crystalline polyethylene terephthalate.

7. **(Original)** The process of claim 5, wherein said article comprises a preform.

8. **(Currently Amended)** The process of claim 1 which further comprises the removal of any excess ~~material~~aqueous solution or dispersion between the coating and curing/drying steps.

9. **(Currently Amended)** The process of claim 1 wherein ~~said curing/drying the irradiation~~ source is selected from one or more of the group consisting of infrared heating and electron beam processing, forced air, flame curing, gas heaters, UV radiation, such that the coating is formed without undesirably heating the article substrate.

10. **(Original)** The process of claim 9 wherein said curing/drying source is infrared heating and forced air.

11. **(Original)** The process of claim 10 wherein the temperature of the forced air is between about 10°C to about 50°C and sufficient to prevent undesirable shrinkage of article while maximizing the removal of liquids without prematurely sealing the article's outer surface so as to entrap unexpelled liquid.

12. **(Original)** The process of claim 9 wherein said curing/drying source is infrared heating.

13. **(Original)** The process of claim 1 wherein said article is rotated to achieve consistent coating and curing/drying.

14. **(Original)** The process of claim 1 wherein said thermoplastic resin coatings comprise one or more of the following characteristics: gas-barrier protection, UV protection, scuff resistance, blush resistance, and/or chemical resistance.

15. **(Canceled)**

16. **(Currently Amended)** The process of claim 1 wherein said phenoxy the first thermoplastic epoxy resin coating comprises hydroxy-phenoxyether polymers.

17. **(Original)** The process of claim 16 wherein said hydroxy-phenoxyether polymer coating comprises polyhydroxyaminoether copolymers made from resorcinol diglycidyl ether, hydroquinone diglycidyl ether, bisphenol A diglycidyl ether, or mixtures thereof.

18. **(Currently Amended)** The process of claim 1 wherein said solution or dispersion of the first thermoplastic epoxy resin comprises organic acid salts made from the reaction of polyhydroxyaminoethers with phosphoric acid, lactic acid, malic acid, citric acid, acetic acid, glycolic acid and/or mixtures thereof.

19. **(Currently Amended)** The process of claim [[1]] 2 wherein said second coating is an acrylic, phenoxy, latex, or epoxy coating that is crosslinked during the drying process.

20-51 **(Canceled)**

52. **(Currently Amended)** A process for making a thermoplastic resin coated preform, the preform having a neck portion and a body portion, the process comprising:

forming a first layer on a preform, the forming of the first layer comprises:

applying an aqueous solution or dispersion of comprising a first thermoplastic epoxy resin and an organic or phosphoric acidphenoxy type

~~thermoplastic resin~~ on an outer surface of a body portion of the preform by dip coating, spray coating, flow coating, or combinations thereof;

 withdrawing the preform from the dip coating, spray coating, flow coating, or combinations thereof at a rate so as to form a first coherent film comprising an acid salt of the thermoplastic epoxy resin;

 curing/drying the coated preform with an irradiation source until the first film is substantially dried so as to form the first layer.

 forming a second layer over the substantially dried first layer, the forming of the second layer comprises:

 applying an aqueous solution or dispersion of a coating material selected from the group consisting of polyester, acrylic, and a second thermoplastic epoxy resin that is different from the first thermoplastic epoxy resin on the substantially dried first coating of the preform by dip coating, spray coating, flow coating, or combination thereof;

 withdrawing the article from the dip coating, spray coating, flow coating, or combinations thereof at a rate so as to form a second coherent film; and

 curing/drying the coated preform until the second film is substantially dried so as to form a second layer.

53. (Currently Amended) The method of Claim 52, wherein the curing/drying of the first thermoplastic epoxy resin and the curing/drying of the second thermoplastic resin are is performed so as to form a multilayer preform that exhibits substantially no blushing or whitening when exposed to water.

54. (Cancelled)

55. (Cancelled)

56. (Cancelled)

57. (Currently Amended) The method of Claim 52, wherein a second thermoplastic material is coated on the first layer, the curing/drying of the first and second thermoplastic resins is performed so as to form an article that exhibits substantially no blushing or whitening when exposed to water.

58. (Currently Amended) The method of Claim 1, wherein the first phenoxy type thermoplastic epoxy resin comprises a polyhydroxyaminoether copolymer.

59. **(Currently Amended)** The method of Claim [[1]] 2, wherein the second coating layer is a top coating layer.

60. **(Currently Amended)** The method of Claim [[1]] 2, wherein one or more top layers are disposed on the second coating layer.

61. **(Previously Presented)** The method of Claim 60, wherein the one or more top layer comprises one or more selected from the group consisting of polyester, acrylic, a second thermoplastic epoxy resin that is different from the first thermoplastic epoxy resin, paraffin, wax, polysilane and low molecular weight polyethylene.

62. **(Currently Amended)** The method of Claim 2, wherein the first Phenoxy type thermoplastic epoxy resin is a phenoxy type resin polyhydroxyaminoether copolymer.

63. **(Currently Amended)** The method of Claim [[2]] 62, wherein the phenoxy type resin is a polyhydroxyaminoether copolymer second coating is the top coating layer.

64. **(Canceled).**

65. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating material of the second coating layer is an acrylic.

66. **(Currently Amended)** The method of Claim [[63]] 2, wherein the coating material of the second coating layer is a polyester.

67. **(Previously Presented)** The method of Claim 66, wherein the polyester comprises polyethylene terephthalate.

68. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating thermoplastic material additionally comprises a wax.

69. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating thermoplastic material additionally comprises a paraffin.

70. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating thermoplastic material additionally comprises a low molecular weight polyethylene.

71. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating thermoplastic material additionally comprises a polysilane.

72. **(Currently Amended)** The method of Claim [[63]] 2, wherein the second coating comprises a different thermoplastic epoxy resin than the first thermoplastic epoxy resin.

73. **(Currently Amended)** The method of Claim 52, wherein the acid salt of the first phenoxy type epoxy resin is produced by the reaction of [[a]] polyhydroxyaminoethers with an organic acid or phosphoric acid, copolymer.

74. **(Currently Amended)** The method of Claim [[73]] 57, wherein the second thermoplastic material additionally comprises a paraffin.

75. **(Currently Amended)** The method of Claim [[73]] 57, wherein the second thermoplastic material additionally comprises a wax.

76. **(Currently Amended)** The method of Claim [[73]] 57, wherein the coating material of the second coating layer second thermoplastic material is a thermoplastic epoxy resin different than the phenoxy-type first thermoplastic epoxy resin.

77. **(Currently Amended)** The method of Claim [[73]] 57, wherein the second thermoplastic material additionally comprises a low molecular weight polyethylene.

78. **(Currently Amended)** The method of Claim [[73]] 57, wherein the coating material of the second coating layer second thermoplastic material is a polyester.

79. **(Previously Presented)** The method of Claim 78, wherein the polyester comprises polyethylene terephthalate.

80. **(Currently Amended)** A process for making a thermoplastic resin coated articles, the process comprising:

applying an aqueous solution or dispersion of a first thermoplastic epoxy resin on an outer surface of a[[n]] plurality of articles substrate by advancing and rotating the plurality of articles through a flow coating, wherein the first thermoplastic epoxy resin comprises phenoxy-type thermoplastic;

removing excess aqueous solution or dispersion from the plurality of articles; and
curing/drying the plurality of coated articles with an irradiation source for about 5 to 60 seconds until the first film is substantially dried so as to form a first coating layer on each article, the first coating layer comprising an acid salt of the first thermoplastic epoxy resin[[;]]

applying an aqueous solution or dispersion of a second thermoplastic resin that is different than the first thermoplastic epoxy resin by flow coating; and

~~curing/drying the coated article until the first film is substantially dried so as to form a second coating layer, wherein the second coating layer comprises a different coating material than the first phenoxy type thermoplastic.~~

81. **(Currently Amended)** The process of Claim 80, wherein the ~~first coating layer comprises a acid salt of the first thermoplastic epoxy resin is formed by mixing a phenoxy-type thermoplastic with an aqueous solution comprising an organic acid or phosphoric acid.~~

82. **(Currently Amended)** The process of Claim 80, wherein the ~~first coating layer comprises acid salt of the first thermoplastic epoxy resin is an acid salt of a polyhydroxyaminoether copolymer.~~

83. **(Currently Amended)** The process of Claim 80, wherein ~~[[the]] a second coating layer is partially or fully cross linked~~applied to the plurality of articles.

84. **(Previously Presented)** The process of Claim 83, wherein the second coating layer is a top coating layer.

85. **(Currently Amended)** The process of Claim ~~[[80]] 83~~, wherein the second coating layer is ~~a top coating layer~~partially or fully cross linked.

86. **(Previously Presented)** The process of Claim 85, wherein an intermediate layer is between the first and second coatings.

87. **(Previously Presented)** The process of Claim 84, wherein an intermediate layer is between the first and second coatings.

88. **(Previously Presented)** The process of Claim 85, wherein the top coating layer comprises polyester.

89. **(Previously Presented)** The process of Claim 88, wherein the polyester is a sulfonated polyester resin.

90. **(Previously Presented)** The process of Claim 84, wherein the top coating layer comprises an acrylic.

91. **(Previously Presented)** The process of Claim 85, wherein the top coating layer comprises an acrylic.

92. **(Currently Amended)** The process of Claim 80, wherein the ~~first or second~~ coating layer~~[[s]]~~ comprises a cross linking additive to increase adhesion to the article.

93. **(Currently Amended)** The process of Claim 80, wherein the article ~~substrate~~ comprises PET.

94. **(Currently Amended)** The process of Claim 80, wherein the article ~~substrate~~ comprises polypropylene.

95. **(Currently Amended)** The process of Claim [[80]] 83, wherein the first or second coating layers comprises one or more selected from O₂ scavengers and CO₂ scavengers.